JAMES

DRIVING AND RUNNING-IN INSTRUCTIONS

THE JAMES CYCLE COMPANY LIMITED
GREET : BIRMINGHAM, 11 : ENGLAND

N.S WATKINS

FOREWORD

It gives us much pleasure to deliver your new James motorcycle and we trust it will provide you with safe, economical and reliable transport for many thousands of miles. Your machine has been designed in the light of considerable experience in the manufacture of lightweight motorcycles and only the minimum of attention is necessary to keep it in first class order.

This booklet is issued pending publication of a comprehensive handbook and its purpose is to provide you with the information necessary when taking over a new machine. It is in your interest to observe these brief instructions carefully. The future service life, driving safety and reliability of your James depend on the care you give it.

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POSITION, FUNCTION AND OPERATION OF CONTROLS

THROTTLE TWIST GRIP. On right handlebar. Controls speed of engine. Twist towards rider to open. Away from rider to close.

CLUTCH LEVER. Large lever on left handlebar. Pull towards handlebar to release engine drive from rear wheel. Use when moving away from rest and also when changing gear. Always let the clutch in gently to prevent transmission snatch.

FRONT BRAKE LEVER. Large lever on right handlebar. Grip to operate front brake. Normally applied in conjunction with rear brake.

REAR BRAKE PEDAL. To front of left hand side footrest. Press down to operate rear brake.

GEAR CHANGE PEDAL. (All models except 98 cc Comet) Horizontal lever in front of right hand footrest. Move UP to select a lower gear. Move DOWN to select a higher gear. Neutral will be found between First (Bottom) and Second gear.

The pedal will always return to the same position and foot should be removed from lever between each gear change. Always grip the clutch lever when changing gears.

GEAR CHANGE LEVER. (98 cc Comet) Small lever on right handlebar. Push forward to engage Low gear. Pull towards rider to engage High gear. Neutral will be found between Low and High gears.

KICK STARTER. Vertical lever with folding crank on right of gearbox. Use to start engine.

LIGHTING SWITCH. (Direct lighting set — AC. equipment). In top of headlamp. Switch has three positions :

L	Pilot and rear lamps lit.
OFF	No lamps in use.
H	Head, rear and speedo lamps lit.

LIGHTING SWITCH (Rectifier/Battery lighting set — AC — DC equipment). In top of headlamp. Switch has 4 positions :

OFF	No lamps in use.
P	Parking lights in use — current supplied by battery.
H	Headlamp, tailight and speedo light in use, current supplied by battery.
DIRECT	Headlamp, tail light and speedo light in use — current supplied from flywheel generator with engine running.

DIPSWITCH. On left handlebar. Deflects main headlamp beam downwards and to the left. Prevents dazzling oncoming drivers.

FILLER CAP. On top of fuel tank. Incorporates oil measure for refuelling. (4 measures to one gallon). Screws on and off.

TICKLER. Small knob on carburetter body. Depress to provide rich mixture for starting.

AIR SHUTTER. Close to enrichen mixture for starting. Use in conjunction with tickler.

FUEL TAP. On left under tank. Pull knob to turn fuel ON. Push in to turn fuel OFF. Always push knob to Off position when stopping for any length of time.

PREPARING FOR THE ROAD

FUEL

PETROIL MIXTURE. When the machine first comes into the hands of the rider it will be ready, but for fuel, for the road. Fill the tank with a mixture of ONE part of oil to SIXTEEN parts of petrol, i.e., half a pint of oil to one gallon. For convenience a measure is attached to the filler cap (four measures to one gallon). Pour the petrol into the tank first, taking care to push the fuel cock OFF before putting in the oil. Now shake the machine from side to side once or twice to mix the contents of the tank. As the petroil supply is the sole means of lubricating the engine, never neglect to perform this trifling duty.

STARTING.

See that there is sufficient fuel in the tank.

Ensure gear lever is in NEUTRAL by rolling machine slightly forwards and backwards. (Neutral is between bottom and second gear.)

Pull fuel cock to ON position.

Close shutter on air cleaner and depress tickler until petroil appears.

Open twist grip about a quarter of its travel.

Standing over machine, depress kickstarter with a long steady swinging movement.

When engine starts do not forget to open the air shutter as fully as possible.

Re-starting when the engine is warm will require no flooding of the carburetter, neither will it be necessary to close the air shutter.

FAILURE TO START

If repeated kicks fail to start after flooding (when cold) turn off fuel supply, open throttle wide and clear crankcase of excessive fuel by giving a number of rapid kicks to starter. Keep engine turning over quickly until it fires. Then do not close throttle but keep wide open until engine revolutions have built up and running is normal.

FAULTS IN STARTING.

Errors often made whilst starting motor cycles are as follows :

Opening throttle too wide : this destroys the advantage of a rich mixture.

Failure to lean the machine slightly to the left, so that pressing of the foot on the kickstarter causes rider and machine to overbalance.

Failure to appreciate that word " kickstarter " is a misnomer. What is really required is a steady swinging movement, the force on the crank being almost constant throughout its travel.

A frantic jab does not produce the required spin of the engine.

Tickling the carburetter insufficiently. This operation must produce a head of fuel on the top of the carburetter body.

These faults are easily corrected with care and will result in greatly improved starting.

It is **NOT** advisable to start the machine on the stand.

RIDING.

THE FIRST RUN. Novices are recommended to drive the machine slowly in bottom gear (for short distances only, of course) whilst making themselves familiar with the controls.

This is best done by bringing the machine to rest and then restarting by a gradual engagement of the clutch several times. When this can be done without stopping or racing the engine, speed can be increased slightly and a change to the next gear made.

Raise the clutch lever and move the foot or hand control to the required position, after which the clutch lever must be gently released, while the throttle should be opened slightly to take the drive on the higher gear.

The change from a high gear to a lower gear is made in a similar manner. A little practice will probably be necessary in order to change gear with ease and certainty, with all movements correctly synchronised, but the gears are very easy to manipulate and will present little difficulty.

The gear change mechanism on a new machine is generally a little stiff and will ease considerably when the machine has been run-in.

STOPPING.

Before slowing down glance to the rear to ascertain what vehicles are following and if necessary give the signal " I am going to slow down." (see Highway Code)

To stop the machine, close the throttle, apply the brakes and when speed is down to a few miles per hour, raise the clutch. The engine thus assists the brakes in slowing down. Most slowing down, e.g., at traffic lights, can be done by allowing the engine to act as a brake and using the brakes themselves for the last few yards only. When the machine is to be left standing for any length of time, it is advisable to turn off the fuel supply, when approaching destination, allowing the engine to use up the supply of fuel in the carburetter while coming to rest.

This avoids the possibility of fuel draining into the engine with subsequent starting difficulties.

RIDING IN TRAFFIC.

In slow moving traffic engage lower gears. This permits the engine to run smoothly and enables overtaking to be accomplished in the minimum of time. The engine must never be allowed to labour, and the judicious selection of the right gear will prolong the life of the engine and the transmission system. Slipping the clutch should be avoided. Whenever in doubt about overtaking, always hang back.

RIDING HINTS.

One of the most important rules to remember is : Before moving off, pulling out to overtake, turning right and turning left, glance over your shoulder to make sure it is safe to do so and if necessary give the correct signal.

If at first bottom gear will not engage whilst the machine is stationary, do not resort to force — simply raise the clutch and move the machine backwards and forwards for a second or two, then try again. In time this condition will disappear.

Take pride in making a smooth start ; it is not clever or wise to race the engine and then let the clutch in suddenly to make a flying start. Make a smooth getaway after first glancing to the rear and signalling your intention.

Always drive on the engine and not on the brakes, thereby saving expense on brake liners. Remember that an engine in low gear is a safe and sure brake and that skidding is well-nigh impossible when using it so.

Change gear on hills **BEFORE** the engine has commenced to labour ; a good driver will learn to anticipate such a condition, and change down early.

When changing gear move the foot or hand lever to the full extent of its travel firmly and smoothly, at the same time as the clutch is disengaged.

Cornering. When approaching an uncertain bend at speed, change down if necessary and brake **BEFORE** entering the curve. On a left-hand bend, ease over near the crown of the road in order to sweep in close to the verge once round the corner. On a right-hand bend, always keep well in to the verge. Never accelerate into a bend.

When using the brakes, apply gentle pressure at first, increasing in strength as the road speed decreases.

Use your full headlight when riding at night unless in brightly lit streets.

Make full use of the dipswitch whilst riding at night ; this is a " courtesy control " and its use will be appreciated by oncoming drivers.

Always reduce speed when your visibility is lowered.

Many accidents are caused by rash over-taking. Be cautious, remembering that a small engine has not the acceleration of a larger machine. Every car driver has a blind spot in his mirror within which he cannot see you. Make sure that he knows you are there if you are overtaking. Similarly glance behind yourself before pulling out.

Remember that pedestrians, young or old, are the most likely to make unexpected changes in direction and speed, step off pavements, come from behind stationary vehicles or, in country districts, suddenly appear round the curve of a blind bend. Constant observation and anticipation is required to avoid them.

RUNNING-IN.

The manner in which a new motorcycle is driven during the first 1000 miles (1600 kms.) can make or mar its eventual performance and useful life, and owners are therefore strongly advised to exercise great care during the vital " running-in " period. In a new machine, despite the most careful manufacture and assembly, each bearing surface has microscopic idiosyncrasies not entirely suited to the opposite surface and the initial period of " light duties " will give those working parts a mirror finish impossible to achieve by machinery. We do not lay down any maximum speeds but advise owners not to run at more than two-thirds throttle for the first 500 miles (800 kms.).

After 500 miles larger throttle openings and short bursts of speed may be indulged in. At all times let the engine turn over lightly. After 1,000 miles (1600 kms.) have been covered, the machine will be " run in " but wide throttle openings over long periods should always be avoided. During the running in period many other parts " bed down " and all nuts should be checked with a spanner for tightness at intervals of 200 miles (320 kms.). Check also the spark plug gap, chain, and brake adjustments.

ROUTINE ATTENTION.

If the following points are attended to regularly the machine can be expected to maintain its reputation for reliability and economy, while at the same time very little will be needed in the way of replacement parts.

AFTER THE FIRST 200 MILES (320 kilometres).
Check nuts and bolts for tightness.
Check adjustment of rear chain.
Check adjustment of steering head and wheel bearings.

EVERY 500 MILES (800 kilometres).
Inspect oil level in gearbox and primary chaincase. If necessary top up with recommended oil. FILL TO LEVEL PLUGS ONLY. Oil front fork sliders with oil gun.

WEEKLY.
Inspect tyres and check pressures.
Clean sparking plug.

EVERY 1,000 MILES (1600 kilometres).
Check, adjust and oil control, levers and twistgrip.
Check adjustment of rear chain. If rollers appear dry, oil with brush. In winter lubricate more frequently.
Grease rear spring units on Comet or Cadet.
Grease speedometer gearbox.
Check adjustment of steering head bearings.
Grease brake pedal pivot.
Check wheel bearings for play. If necessary adjust.
Clean and re-oil carburetter air filter.
Clean banjo filter gauze.
Check and adjust sparking plug gap.

EVERY 5,000 MILES (8000 kilometres).
Drain and refill chaincase and gearbox, whilst engine is warm. FILL TO LEVEL PLUGS ONLY, over filling will lead to trouble.
Make thorough examination of lighting cables.

OCCASIONALLY.
Oil brake cam bearings to ensure smooth application. Oil too such parts as the rear brake lever, cable or rod pivots, and centre stand pivots. The saddle hinge pin should be oiled occasionally and checked to ensure that the saddle is free to pivot without being too tight.
Do NOT oil wheel hub bearings.

RECOMMENDED LUBRICANTS. (U.K. and Overseas.)

	SHELL	WAKEFIELD	VACUUM	B.P.	ESSO
ENGINE (All Seasons)	Shell X-100 30	Castrol XL	Mobiloil A	Energol SAE 40	Essolube 30
GEARBOX	Shell Dentax 140	Castrol D	Mobilube C140	Energol SAE 140	Esso Gear Oil 140
CHAIN CASE	Shell Dentax 140	Castrol D	Mobilube C140	Energol SAE 140	Esso Gear Oil 140
EXPOSED CHAINS AND GREASE GUN	Shell Retinax A or CD	Castrolease Graphited	Mobilgrease No. 2	Energrease C 3	Esso Grease Esso Chassis Grease
WHEEL HUBS	Shell Retinax A or RB	Castrolease Heavy	Mobil Hub Grease	Energrease C 3	Esso Grease Esso Bearing Grease
FORKS and OIL CAN	Shell X-100 30	Castrol XL	Mobiloil A	Energol SAE 30	Essolube 30

ALWAYS USE A BRANDED OIL OF GOOD REPUTE

Note : Model J11 98 cc Comet has a common chaincase and gearbox filler plug.

TRAINING FOR BEGINNERS.

Skill in motor cycling is not a gift. It has to be learnt and practised. Many clubs operate a scheme in co-operation with the R.A.C. and the A.C.U. for teaching young motor cyclists and beginners to become expert. For details apply to the Motor Cycle Department, Royal Automobile Club, 85 Pall Mall, London, S.W.1.

THE MACHINE AND THE LAW

Every motor cycle used on the public roads of Great Britain must be registered and carry the registration numbers and licence disc allotted to it. The dealer, from whom the machine is bought, will, generally, attend to all matters legally essential before it is used on the public roads.

TO REGISTER A NEW MACHINE.

Send to the Local Registration Authority the following :

(a) Form " RF1/2," duly completed.
(b) The certificate of insurance.
(c) The invoice you received from your dealer when you purchased the machine.
(d) The appropriate registration fee.

In due course you will receive :

(1) A Registration Book. (Commonly called the " log " book.)
(2) A Licence Disc.
(3) Your Insurance Certificate.
(4) Your Invoice.

The Registration Book and the Licence Disc will bear the registration numbers that have been allotted to your machine and will also show the date the Road Licence expires. Your number plates must then be painted, in white upon a black background, with the registration numbers in characters of even thickness as follows :

The numbers on the front plate must be 1⅜″ high, 1¼″ wide and $\frac{5}{16}$″ thick with spaces of ½″ between each two characters.

The numbers on the rear plate must be 2½″ high, 1⅜″ wide and ⅜″ thick with spaces ½″ between each two characters.

The Licence Disc must be enclosed in a watertight container, having a transparent front, and this must be fixed to the machine in a conspicuous position, near the front and on the left-hand side.

Although it is not legally necessary to carry your Driving Licence, Insurance Certificate and Registration Book while driving your machine, it should be noted that Police Officers have authority to ask for the Driving Licence and Insurance Certificate at any time.

SPEEDOMETER.

A speedometer **MUST** be fitted to all motor cycles over 100 c.c. It is supplied as standard equipment on the James Cadet.

LAMPS.

During the official **" LIGHTING UP "** hours the machine must exhibit a white light facing forwards and a red light facing rearwards. The rear number plate must be adequately illuminated by a white light.

Each electric light bulb **MUST** be marked with its " Wattage." (Beware of cheap, imported, bulbs that do not have this marking.)

All motor cycles made by us have electric equipment that complies with the law regarding position, size of bulbs, marking on bulbs and the correct illumination of the rear number plate.

THE DRIVER AND THE LAW.

The driver of a motor cycle **MUST** be **INSURED** against Third Party Claims and **MUST** be able to produce an **INSURANCE CERTIFICATE** showing that such an insurance is in force.

If your Insurance Certificate specifies you can only drive one particular machine you **MUST NOT DRIVE** any other machine unless its owner has a current Certificate covering **" ANY DRIVER "** and it is advisable to remember that, in the absence of such a provision the penalties for doing so are very heavy.

The driver of a motor cycle **MUST** hold a current **DRIVING LICENCE.** If you are a learner and hold a Provisional Driving Licence, your machine must show, front and back, the standard " L " plates in red and white and you must not take a **PILLION PASSENGER** unless that passenger is the holder of a current **UNRESTRICTED** driving licence.

As soon as you receive your driving licence, sign it in the appropriate place and do so each time it is renewed. It is an offence not to.

Make sure you are well acquainted with the recommendations set down in the " Highway Code," a copy of which can be obtained from any main Post Office.

FREE SERVICE SCHEME (U.K. ONLY).

All owners of **NEW MODELS** are entitled to one **FREE SERVICE AND INSPECTION** at 500 miles, or, at latest, three months after taking delivery.

This service is arranged by the supplying dealer to whom the **Free Service Voucher** must be handed. This voucher will be found in the tool box upon taking delivery of a new motor cycle.

The **INSPECTION AND SERVICE** consists of :

(a) Check, and, if necessary, adjust :
(1) Contact breaker points.
(2) Sparking plug.
(3) Clutch.
(4) Chains.
(5) Wheel bearings.
(6) Brakes.
(7) Forks and steering head.
(8) Alignment of wheels.
(9) Tyre pressures.

(b) Tighten all external nuts and bolts, including cylinder bolts.
(c) Check all lighting equipment.
(d) Clean out carburetter and adjust mixture.
(e) Adjust and lubricate all cables.
(f) Grease all nipples.
(g) Check oil level in front chaincase.
(h) Top-up gear box.
(i) Test machine on the road.

NOTE.—Oils, greases and materials used are chargeable to the customer.

ENGINE.

In the cylinder walls are arranged four holes or ports, viz. : one inlet port which permits the air fuel mixture to enter the crankcase, two transfer ports which, through passages in the sides of the cylinder, are in communication with the crankcase, and one exhaust port through which the burned charge is allowed to escape. Movement of the piston in a vertical direction is arranged to cover and uncover the ports at suitable times so that the mixture is first drawn from the carburetter through the inlet port into the crankcase. There it is compressed and then forced through the transfer passage into the cylinder above the piston, where it is further compressed. It is then ignited by a spark from the plug, and after expansion due to heat, escapes through the exhaust port into the exhaust pipe and silencer.

LUBRICATION OF ENGINE.

In order to maintain the efficiency of the engine and to reduce wear to a minimum it is essential that all moving parts are adequately lubricated. The system adopted for Villiers two-stroke engines is the PETROIL system in which a given quantity of oil is mixed with the petrol. As the mixture first enters the crankcase and then into the cylinder, all working parts are adequately lubricated, and as the amount of fuel used will increase with the power output, it will be seen that a greater quantity of oil is supplied under arduous conditions.

SPARKING PLUG.

The Lodge 14 m.m. plug fitted as original equipment will stand up to the maximum power output of the engine without pre-ignition and little trouble should be experienced. The point gap should be checked every 2,000 miles and reset to ·018″–·025″ if necessary. It is a good plan to carry a spare plug of the correct type so that when the plug in use requires cleaning, it can be removed and the clean spare inserted in its place. Keep the spare plug well wrapped up, to protect the all-important points.

CLEANING THE PLUG.

Grip body very gently in a vice and remove gland nut to free the insulator. Wash in petrol, scraping insulator with a knife or rubbing with fine emery to remove carbon, and wash again. The body can be cleaned internally by scraping and wiped with a petrol-soaked rag. The electrodes should be very carefully scraped. DO NOT rub a wire brush over the points — this will have a ruinous effect. When re-assembling tighten gland nut as much as possible. Set point gaps to ·018″–·025″ by tapping OUTSIDE electrodes — NEVER tap the central electrode.

Do not overtighten the plug in the cylinder head ; this may result in stripped threads and flattening of the copper washer. A whitish deposit on the insulator denotes a weak carburetter mixture.

BRIDGING OF PLUG GAP.

This occurs in the form of a deposit between the central electrode and earth points, causing a short circuit and preventing a spark. It is sometimes mistaken for oiling-up but the cause is believed to be the addition of Ethyl Fluid in varying percentages to fuel, the basic quality of which varies considerably. The high working temperature of a two-stroke engine appears to be the reason for this bridging and it follows that a weak mixture, retarded ignition, a choked exhaust system or anything likely to increase the working temperature may result in bridging. Attention to the following will result in an increased mileage before it becomes necessary to clear the points.

(a) Ensure ignition timing is correct and contact breaker gap is between ·014″–·016″.

(b) The carburetter may be set to give a richer mixture.

(c) The normal spark plug gap should be increased as much as possible consistent with easy starting and good running.

GEARBOX AND PRIMARY CHAINCASE LUBRICATION.

Always specify one of the recommended makes and grades of oil. Do not overfill either the gearbox or the chaincase, excessive lubricant can cause nearly as much trouble as the lack of it. The gearbox oil level should be checked as often as possible. When refilling it is a good plan to remove the gearbox oil level plug and to fill until oil runs out of the plug-hole.

Similarly, on the chaincase, oil should be at plug-hole level when the machine is on an even surface.

CHAINS.

A chain is an assembly of links with rollers connected together by outer link plates and held together by rivets. If it is kept clean, adequately lubricated and correctly adjusted, a chain will give little trouble and will wear out long before breaking point is reached.

The front chain is fully enclosed in an oil bath and consequently wear will be negligible over a long period. The rear chain, being exposed and more heavily loaded is more likely to give trouble through neglect and should be regularly checked for tension and frequently lubricated.

ADJUSTMENT OF REAR CHAIN.

The rear chain will probably require adjusting after completion of the first 200 miles (320 kms.) owing to stretch which occurs with all new chains. To take up the play, loosen both rear spindle nuts. The adjusters must be rotated the same number of turns in the same direction to keep the wheel in alignment, until there is approximately $\frac{3}{8}$″ to $\frac{1}{2}$″ up and down movement

in the bottom run of the chain. Check adjustment in various positions by rotating the wheel a little. This is necessary because there is always one spot tighter than the rest. After adjusting, do not forget to tighten the spindle nuts. Re-adjust knurled nut on the brake rod to obtain the correct tension.

Never drive with the chain too tight — this will ruin the gearbox main bearing very rapidly.

IGNITION FAILURE.

The cause of ignition failure will generally be found to be due to the condition of the sparking plug or contact breaker points, or faulty insulation of plug wire or contact breaker connections. Serious trouble in the form of condenser or coil breakdown is very rare.

The first step in dealing with ignition trouble should be to remove plug from engine and examine the points to see whether they are oily and the gap correctly set between ·018″ and ·025″. If the insulator is fouled with oil and carbon, there may be sufficient leakage to prevent correct sparking and cleaning will be necessary. Fitting a new plug will readily show whether the failure is due to plug or not.

CARBURETTER CABLE ADJUSTMENT.

A certain amount of slack may develop in the throttle cable after a time ; this can be taken up by means of the adjuster on top of the carburetter.

TWIST GRIP ADJUSTMENT.

Adjustment of the spring tension on the twist-grip sleeve is effected by means of a screw and locknut in the bottom half of the twist-grip casting. To increase tension turn the screw clockwise and tighten locknut.

The twist-grip should not be adjusted so that it is difficult to turn as this will probably result in an aching wrist. Adjustment should be such that the grip is easy to operate but remains in position when the hand is removed for signalling, etc.

STEERING STEM ADJUSTMENT.

With the machine on the stand, need for adjustment is indicated when slight movement in the steering stem bearings is felt by trying to rock the forks. Test for slackness at the end of the first 200 miles (320 kms.) and thereafter every 1,000 miles (1600 kms.).

The head bearing is adjusted by loosening the domed head stem nut and carefully screwing down the adjusting race under the top plate. DO NOT ADJUST HEAD BEARINGS TOO TIGHTLY — this will make steering heavy and may also ruin the bearings.

LUBRICATION OF CONTROLS.

All controls should be adequately lubricated to ensure complete control of the machine at all times. These include levers, cables, brake connections. Small lengths of cable that are exposed should be smeared with grease.

Avoid excessive use of oil on the control levers, as the oil is likely to run along the lever and make them slippy and unpleasant to operate. Do not forget to oil the centre stand pivots.

HUBS AND BEARINGS.

Both hubs are packed with grease when new and no further lubrication will be required for five or ten thousand miles, when it is advisable to dismantle the hubs for attention to the bearings. The old grease should then be cleaned out with petrol or paraffin and the hubs packed with fresh lubricant when re-assembling.

WHEEL BEARING ADJUSTMENT — MODELS J5 AND J11 ONLY

To adjust front wheel bearings, slacken the nut next to the adjusting cone on the right-hand side and turn the cone clockwise until the wheel rotates freely but has no trace of lateral play.

The rear wheel adjusting cone is on the brake side and has a castled hexagon engaging with it.

To adjust, slacken locking nut and turn the hexagon clockwise.

Great care must be taken to ensure the bearings are not adjusted too tightly. After adjusting the wheel bearings, make sure the locknuts are tightened hard against the adjusting cones. Always use two spanners for the job to prevent the locknut from rotating the adjusting cone when it is tightened.

N.B.—Other James models have journal bearings which require no adjustment.

BRAKES.

If the brakes are correctly adjusted and oil is never used to lubricate the bearings, the brakes will require no attention for many thousands of miles.

Never use petrol or paraffin to wash brake shoes. These liquids have an adverse effect on the liners, and much braking efficiency may be lost thereby.

Never rasp the surfaces of brake liners with a coarse file or stiff wire brush to provide increased friction — this treatment has exactly the opposite effect.

Brake cable or rod adjustment should be such that only a slight movement of the lever or pedal is sufficient to operate the brake, but at the same time, the wheels must spin freely when the brakes are off. To give the correct adjustment, screw up the adjuster until the liners are just fouling the drum, then slack off two complete turns.

After altering the tension of the rear chain, check the adjustment of the brake rod.

TYRES.

To obtain the maximum mileage from the tyres, maintenance should be regular and painstaking. Once a week check the tyre pressures with a gauge and at the same time examine the outer covers to ensure no particles of gravel, etc., are wedged in the tread.

The pressure required naturally varies according to the weight carried by the tyre as the total weight is unevenly distributed between the two tyres. The following pressures will be found adequate for the average rider weighing up to 12 stone. If a passenger is carried on models K7 and K12 add two to three pounds extra pressure in rear tyre.

Model J11	Comet (2.25 x 19 tyres) — Front 19 lbs.	Rear 29 lbs.
Model J5	Cadet (2.75 x 19 tyres) — Front 15 lbs.	Rear 22 lbs.
Model K7	Captain (3.00 x 19 tyres) — Front 15 lbs.	Rear 22 lbs.
Model K12	Colonel (3.00 x 19 tyres) — Front 18 lbs.	Rear 24 lbs.

CLEANING.

Make a practice of giving the machine a really good clean as often as possible, keeping a soft cloth specially for the purpose. By careful cleaning the original sheen of enamelled parts may be retained indefinitely.

Where mud is thickly caked on, do not attempt to brush it off ; abrasive particles will rapidly damage the enamel. Water from a small hose or a wet sponge should be used, taking care not to let water into the carburetter, magneto and brake linings.

Never garage a dripping machine after a wet run. Remove moisture by dabbing gently with a soft cloth, i.e., butter muslin.

Salt laid down in city streets during snowy winter periods has a corrosive effect on enamel and chromium plating. A useful tip is to smear the wheel rims (particularly chromed rims) and other exposed parts of the machine with a film of oil or grease. This can easily be removed with a petrol-soaked rag when the weather improves.

Tins of quick-drying lacquer in the correct James maroon shade can be purchased through most James spares stockists and will be found useful for touching up spots where the enamel has accidently been removed.

CHROMIUM PLATING.

In damp weather, small spots of rust-like deposit may be observed on chromium plating. It is not rust but the action of certain salts used in the plating process. If attended to in good time such spots can easily be removed by rubbing with a good brand of chromium polish. NEVER USE HOUSEHOLD METAL POLISH ON CHROMIUM PLATING.

In summer, when wet conditions are less frequent, it is best to clean plating with a damp chamois leather cloth and soft rag.

Parts not enamelled or plated, such as the aluminium alloy primary case, crankcase and gearbox are best cleaned with a stiff brush dipped in petrol or paraffin.

BATTERY.

The battery normally supplied with machines fitted with rectifier lighting sets is the Lucas type PU7-E/9 6 volt, 12 amp. hours.

It will be noted that directions are expressed in terms of TIME instead of MILEAGE as is usually the case with motorcycles.

This is because deterioration soon sets in if the battery is left standing without attention for any length of time. To keep the battery in good condition, maintenance must be carried out whether the machine is in use or not.

Every month (every fortnight in summer), remove battery top, clean terminals, and top up the three cells to $\frac{1}{8}$″ above the level of the plates with distilled water — NOT tap water, as this contains impurities detrimental to the battery. Pour the distilled water through a glass funnel or syringe.

Many lighting troubles can be traced to unseen corrosion between the surfaces of the battery terminals ; the positive is earthed to reduce this effect to a minimum, but keep the terminals clean. A little grease smeared on them will help prevent corrosion.

Do not keep distilled water in receptacles made of any kind of metal as this will quickly render it impure — make use of a clean glass bottle or jar. Rainwater collected in a jar makes a satisfactory substitute for distilled water.

NEVER bring a naked light near a battery with vent plugs removed or when the battery is being charged ; the gas given off by the electrolite is dangerously explosive.

Battery acid is highly corrosive ; therefore throw away any cleaning rags used to clean the battery lest their use on other parts of the machine causes rust.

NEVER let a battery completely run down ; if this does occur, get it charged as soon as possible, or its length of life may be seriously shortened.

BULBS.

If replacement bulbs are required always fit the correct pattern. Do not purchase cheap bulbs of foreign manufacture

MODEL	J11 COMET	J5 CADET	K7 CAPTAIN	K12 COLONEL
Head lamp main bulb	6 v. 18/18 watt D.C.	6 v. 30/24 watt	6 v. 24/24 watt	6 v. 24/24 watt
Head lamp pilot bulb	3.5 v. ·15 amp. M.E.S.	3·5 v. ·15 amp. M.E.S.	6 v. 3 watt	6 v. 3 watt
Tail lamp	6 v. ·3 watt S.C.	6 v. ·3 watt S.B.C.	6 v. 3 watt M.B.C	6 v. 3 watt M.B.C.
Speedo bulb	—	6 v. ·17 amp. Miniature B.C.	6 v. ·17 amp. Miniature B.C.	6 v. ·17 amp. Miniature B.C.

SPARES AND REPAIRS

For the convenience of owners, James Spares Stockists are appointed for most districts, and customers are recommended to always apply to their nearest stockists. A list of stockists can be obtained on application (please enclose stamped and addressed envelope for reply).

When ordering spare parts, owners are advised to produce the original part as pattern, and to quote their full engine and frame numbers to enable identification.

Instructions regarding repairs should be clear and definite, otherwise the cost may be greater than expected. We shall be pleased to give estimate for repairs if parts are sent to us for that purpose. If the estimate is accepted, no charge will be made for the preliminary examination, but should the owner decide not to have the work carried out, a nominal charge may be made to cover the cost of whatever work may have been done to prepare the estimate. Parts sent to us as patterns or for repairs should have attached to them a label with the sender's full name and address. Instructions regarding such parts should be sent separately.

Customers wishing to retain old parts which are replaced during overhaul or repair should state so before work commences, as normally such parts are scrapped upon removal.

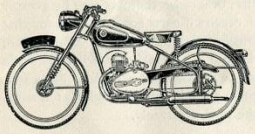
If it is necessary to bring a machine, or parts, to the works for an urgent repair, it is essential that an appointment be made beforehand. This can be done by letter or telephone, and will avoid disappointment.

Orders should always be sent in list form and not as part of a letter.

JAMES 1954 MODELS

98 cc Model J11 COMET

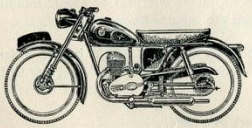
The introduction of the spring frame Comet heralds a new era for riders who require safe and reliable transport at low cost. The 98 cc Comet offers all these advantages—plus a standard of comfort hitherto denied to the ultra lightweight enthusiast.



122 cc Model J5 CADET

"The James Cadet offers not only all round performance equal to the best in its class, but also a standard of detail design and finish worthy of a much more costly machine."

vide *The Motor Cycle*



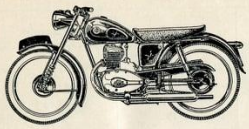
197 cc Model K7 CAPTAIN

The new Captain is the supreme model for the lightweight enthusiast. Lively, tractable and very economical to run, it has a performance to satisfy the most exacting owner.

TECHNICAL SPECIFICATIONS

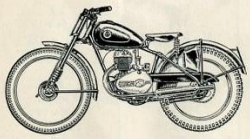
Model	J11 Comet	J5 Cadet	K7 Captain
Bore and Stroke	47×57 m.m.	50×62 m.m.	59×72 m.m.
Cylinder Capacity	98 c.c.	122 c.c.	197 c.c.
Compression Ratio	8 to 1	8 to 1	7·25 to 1
Gear Ratios. Top	8·5	7·33	5·74
" Third	—	—	—
" Second	—	10·19	7·7
" First	13·1	19·5	14·7
Front Chain Size	⅜″×¼″×·225″	⅜″×¼″×·225″	⅜″×¼″×·225″
Rear Chain Size	½″×·335″×·192″	½″×·335″×·205″	½″×·335″×·205″
Brake Drum Diameter. Front	4″	4″	5″
" Rear	5″	5″	5″
Brake Lining Area	11⅜ sq. in.	11⅜ sq. in.	13 sq. ins.
Tyres, Dunlop. Front	2·25×19	2·75×19	3·00×19
" Rear	2·25×19	2·75×19	3·00×19
Wheel Base—(Static)	49″	49″	50″
Overall Length	78″	78″	78″
Handlebar Width	25½″	25½″	25½″
Saddle Height	27½″	28″	30″
Ground Clearance	4½″	5″	5½″
Weight (Approx.)	128 lbs.	166 lbs.	220 lbs.
Fuel Tank Capacity	2 galls.	2 galls.	2½ galls.
Approximate Top Speed	42 m.p.h.	48 m.p.h.	58 m.p.h.
Average Fuel Consumption (Approx.)	165 m.p.g.	135 m.p.g.	110 m.p.g.

JAMES 1954 MODELS



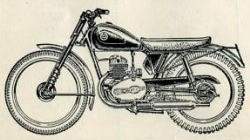
225 cc Model K12 COLONEL

The 225 cc Colonel is the ideal touring machine for the discriminating rider who insists on maximum comfort coupled with first class road-holding and smooth, flexible power.



197 cc Model J9 COMMANDO

The latest Commando incorporates many worth while improvements adopted as a result of succesful participation by works machines in leading events.



197 cc Model K7C COTSWOLD

Specially designed for the rapidly increasing number of scramble and moto-cross enthusiasts in all parts of the world, the new spring frame James Cotswold embodies numerous features of interest to competition riders.

TECHNICAL SPECIFICATIONS

Model	K12 Colonel	J9 Commando	K7C Cotswold
Bore and Stroke	63×72 m.m.	59×72 m.m.	59×72 m.m.
Cylinder Capacity	224 c.c.	197 c.c.	197 c.c.
Compression Ratio	7 to 1	8·25 to 1	8·25 to 1
Gear Ratios. Top	6·21	6·54	6·27
" Third	8·2	8·83	8·48
" Second	11·8	15·0	11·3
" First	19·05	22·6	18·2
Front Chain Size	⅜″×¼″×·225″	⅜″×¼″×·225″	⅜″×¼″×·225″
Rear Chain Size	½″×·335″× 305″	½″×·335″×·205″	½″×·335″×·205″
Brake Drum Diameter. Front	6″	5″	5″
" Rear	6″	5″	5″
Brake Lining Area	22 sq. in.	13 sq. ins.	13 sq. ins.
Tyres, Dunlop. Front	3·00×19	2·75×21	2·75×21
" Rear	3·00×19	4·00×19	3·50×19
Wheel Base—(Static)	50″	49″	50″
Overall Length	78″	78″	76½″
Handlebar Width	25½″	27″	27″
Saddle Height	30″	31″	30″
Ground Clearance	5½″	8½″	6½″
Weight (Approx.)	275 lbs.	196 lbs.	208 lbs.
Fuel Tank Capacity	2½ galls.	2½ galls.	2½ galls.
Approximate Top Speed	62 m.p.h.	—	—
Average Fuel Consumption (Approx.)	90 m.p.g.	—	—

THE JAMES GUARANTEE AND CONDITIONS OF SALE.

We give the following guarantee with our motor cycles, motor cycle combinations, and sidecars, including all accessories and component parts other than tyres, saddles, chains, and lighting and electrical equipment, and other than accessories and component parts supplied to the order of the Purchaser and differing from those comprised in the standard specifications supplied with our motor cycles, motor cycle combinations and sidecars, but including accessories and parts supplied by way of exchange as hereinafter provided. This guarantee is given in place of any implied conditions or warranties or any liabilities whatsoever statutory or otherwise ; no guarantee except that hereinafter contained and no conditions or warranty whatsoever statutory or otherwise is given or is to be implied, nor are we to be under any liability whatsoever except under the guarantee hereinafter contained. Any statement, description, condition, or representation contained in any catalogue advertisement, leaflet or other publication shall not be construed as enlarging, varying or overriding anything herein contained. In the case of machines (*a*) which have been used for " hiring out " purposes or (*b*) any motor cycle and/or sidecar used for any dirt track, cinder track or grass track racing or competitions (or any competition of any kind within an enclosure for which a charge is made for admission to take part in or view the competition) or (*c*) machines from which the trade mark, name or manufacturing number has been altered or removed or (*d*) any machines in which parts have been used not supplied by or approved by the motor cycle manufacturer, or (*e*) any machine from which the silencing system as fitted by the manufacturer has been partially or wholly removed or interfered with, no guarantee, condition or warranty of any kind statutory or otherwise is given or is to be implied nor are we to be under any liability whatsoever in respect of any such machine.

We guarantee, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, but this guarantee is to extend and be in force for six months only from date of purchase, or date of exchange in case of any accessory or part supplied by way of exchange as hereinafter provided, and damages for which we make ourselves responsible under this guarantee are limited to the free repair of or supply of a new part or accessory in exchange for the part of the motor cycle, motor cycle combination or sidecar or accessory which may have proved defective. We undertake, subject to the conditions mentioned below, to make good in manner aforesaid any part or accessory covered by this guarantee which has proved defective within the said period of six months. We do not undertake to replace or refix, or bear the cost of replacing or refixing any such new part or accessory in the motor cycle, motor cycle combination or sidecar. As motor cycles, motor cycle combinations and sidecars are easily liable to derangement by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse or neglect.

The term " misuse " shall include, amongst others, the following acts :

1. The attaching of a sidecar to a motor cycle in such a manner as to cause damage or calculated to render the latter unsafe when ridden.
2. The use of a motor cycle or of a motor cycle and sidecar combined, when carrying more persons or a greater weight than that for which the machine was designed by the manufacturers.
3. The attaching of a sidecar to a motor cycle by any form of attachment not provided, supplied, or approved by the manufacturers, or to a motor cycle which is not designed for such use.

We do not guarantee tyres, saddles, chains or lighting and electrical equipment or any accessories or component parts supplied to the order of the Purchaser differing from those comprised in the standard specifications supplied with our motor cycles, motor cycle combinations or sidecars. As regards all such tyres, saddles, chains, lighting and electrical equipment, accessories and component parts, no guarantee condition or warranty of any kind statutory or otherwise is given or is to be implied, and we are to be under no liability whatsoever in respect thereof.

CONDITIONS OF GUARANTEE.

If a defective part or accessory should be found in our motor cycles, motor cycle combinations or sidecars, or in any part or accessory supplied by way of exchange as before provided, it must be sent to us CARRIAGE PAID, and accompanied by an intimation from the owner that he desires to have it repaired or exchanged free of charge under our guarantee and he must also furnish us at the same time with the number of the machine, the date of the purchase or the date when the alleged defective part or accessory was exchanged as the case may be.

Failing compliance with the above, such articles will lie here at THE RISK OF THE OWNER, and this guarantee and any implied guarantee, warranty or condition shall not be enforceable.

REPAIRS.

Any motor cycle, motor cycle combination or sidecar sent to us to be plated, enamelled or repaired will be repaired upon the following conditions, i.e., we guarantee that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, such guarantee to extend and be in force for three months only from time such work shall have been executed, and this guarantee is in lieu and in exclusion of all conditions and warranties statutory or otherwise and all liabilities whatsoever and the damages recoverable are limited to the cost of any further work which may be necessary to amend and make good the work found to be defective.

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